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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,105	12/10/2003	Tsuyoshi Kaneko	117831	4534
25944	7590	03/30/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			SONG, SARAH U	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,105

Applicant(s)

KANEKO, TSUYOSHI

Examiner

Sarah Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6,9-11,13-17 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-6,9-11,13-17 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0206.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's communication filed on March 13, 2006 has been carefully considered and placed of record in the file. Claims 1, 2, 7, 8, 12, 18-27 and 29-30 are canceled. Claims 3-6, 9-11, 13-17 and 28 are pending.
2. The finality of the Office action mailed January 10, 2006 is hereby withdrawn in view of the new ground of rejection set forth below.

Information Disclosure Statement

3. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on February 13, 2006 have all been considered and made of record (note the attached copy of form PTO-1449).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 3-6, 9, 10, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (U.S. Patent 4,601,535).**
6. Regarding claim 3, Tanaka et al. discloses a connection structure comprising an optical element 1 including an optical surface; an optical fiber 2 having a clad (inherent) and a core 5, a part of the core being enclosed in the clad, the core having an exposed surface (i.e. end surface);

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and a connecting part 15 (i.e. polymerized portion) that joins the optical surface and only the exposed surface of the core of the optical fiber. See Figures 3b and 7a.

7. Regarding claim 4, as noted above, the exposed surface has an end surface of the exposed surface of the core of the optical fiber.

8. Regarding claim 5, Tanaka et al. disclose the refractive index of the connecting part being almost equal to a refractive index of the core of the optical fiber (column 3, lines 51-56; column 4, lines 40-43; column 5, lines 44-47).

9. Regarding claim 6, the clad inherently has a refractive index less than that of the core for establishing total internal reflection of light within the fiber core. Therefore, since Tanaka et al. disclose the refractive index of the connecting part to be almost equal to that of the core, the core index being higher than the clad index, the refractive index of the connecting part is also greater than that of the clad of the optical fiber.

10. Regarding claim 9, an area that surrounds the connecting part is covered by a sealant (unpolymerized peripheral portion) at the end surface.

11. Regarding claim 10, Tanaka et al. disclose the refractive index of the sealant to be less than that of the connecting part (column 6, lines 36-41), and thus resultantly less than that of the core of the optical fiber.

12. Regarding claim 13, the connecting part is formed by hardening a liquid material that is hardened by charging energy (column 6, lines 28-36).

13. Regarding claim 14, the connecting part is composed of ultraviolet curing resin (column 4, lines 12-17).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. **Claims 11, 15-17 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al.**

16. Regarding claim 11, Tanaka et al. discloses the claimed invention but does not expressly disclose the refractive index of the sealant to be almost equal to the refractive index of the clad. However, since Tanaka et al. discloses the connecting part to have a refractive index approximate that of the core and the sealant to have refractive index less than that of the connecting part, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the sealant having a refractive index approximate that of the clad to preserve the optical waveguiding characteristics of the fiber through the connecting part for efficient optical transmission characteristics. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select appropriate material refractive indices since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. See MPEP 2144.07.

17. Regarding claim 15, Tanaka et al. does not expressly disclose the optical element to be at least one of a surface emitting semiconductor laser, a semiconductor light emitting diode, an electroluminescent device, and a photodiode. However, optical fiber connections to a surface

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emitting semiconductor laser, a semiconductor light emitting diode, an electroluminescent device, and a photodiode are well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the connection structure of Tanaka et al. for any of the well-known fiber optic connections for the purpose of reducing reflection losses at the interfaces.

18. Regarding claims 16 and 17, Tanaka et al. does not expressly disclose a semiconductor chip electrically coupled to the optical element. However, it is known in the art that semiconductor light receiving or emitting elements require a semiconductor chip electrically coupled thereto in order to function properly. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a semiconductor chip electrically coupled to the optical element of Tanaka et al. in order to provide requisite drive signals to the device.

19. Further regarding claim 17, Tanaka et al. does not expressly disclose the optical fiber coupled to a light-emitting element on one end and a light-receiving element on the other. However, it is well known in the art for optical transmission fiber to comprise an emitter on one end and a receiver on the other end. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the emitter and receiver as claimed as requisite features of a complete optical transmission line, wherein the connection structure is provide for at least one of the light emitting element and the light receiving element for the purpose of reducing reflection losses at the interface.

20. Regarding claim 28, Tanaka et al. does not expressly disclose that the connecting part secures optical transmission between the optical element and the optical fiber without precise

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alignment of the optical element and the optical fiber. However, since the connecting part of Tanaka et al. is a waveguide (see column 6, line 40) that guides light there through from one end to the other, one of ordinary skill in the art would have recognized that the connecting part resultantly secures optical transmission between the optical element and the optical fiber without precise alignment of the optical element and the optical fiber.

Response to Arguments

21. Applicant's arguments with respect to claims 3-6, 9-11, 13-17 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sarah Song
Primary Examiner
Group Art Unit 2874